

FIGURE 1

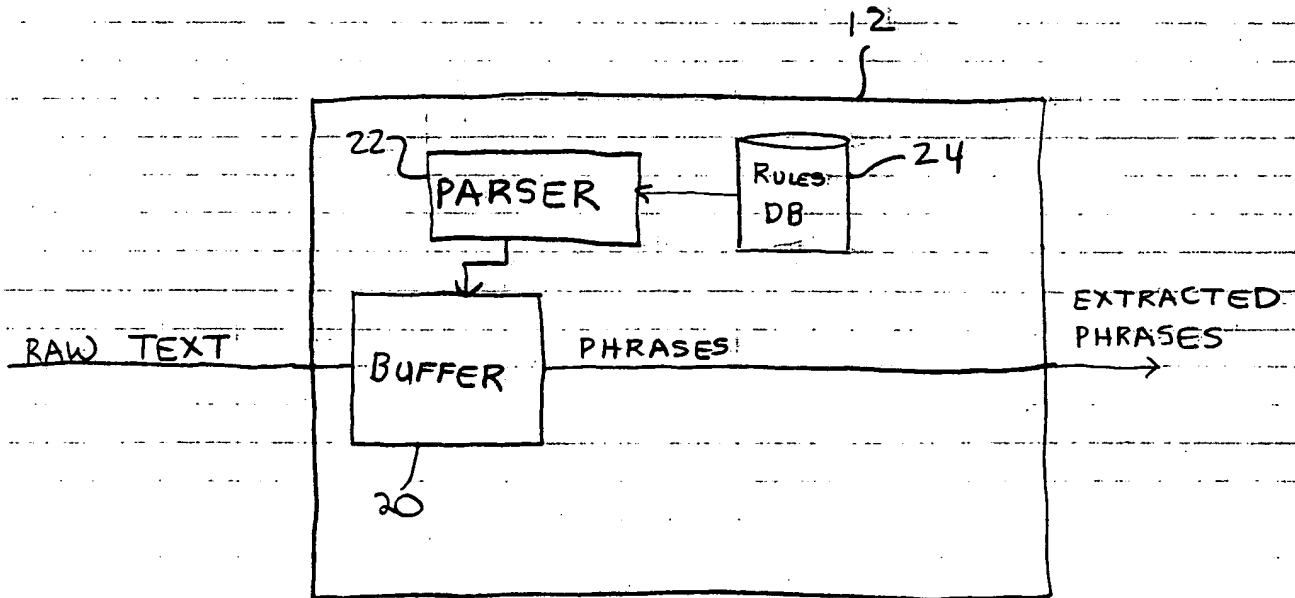


FIGURE 2

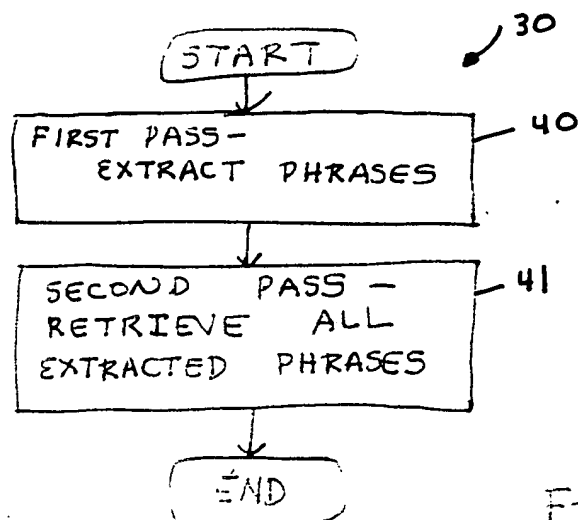


FIGURE 3A

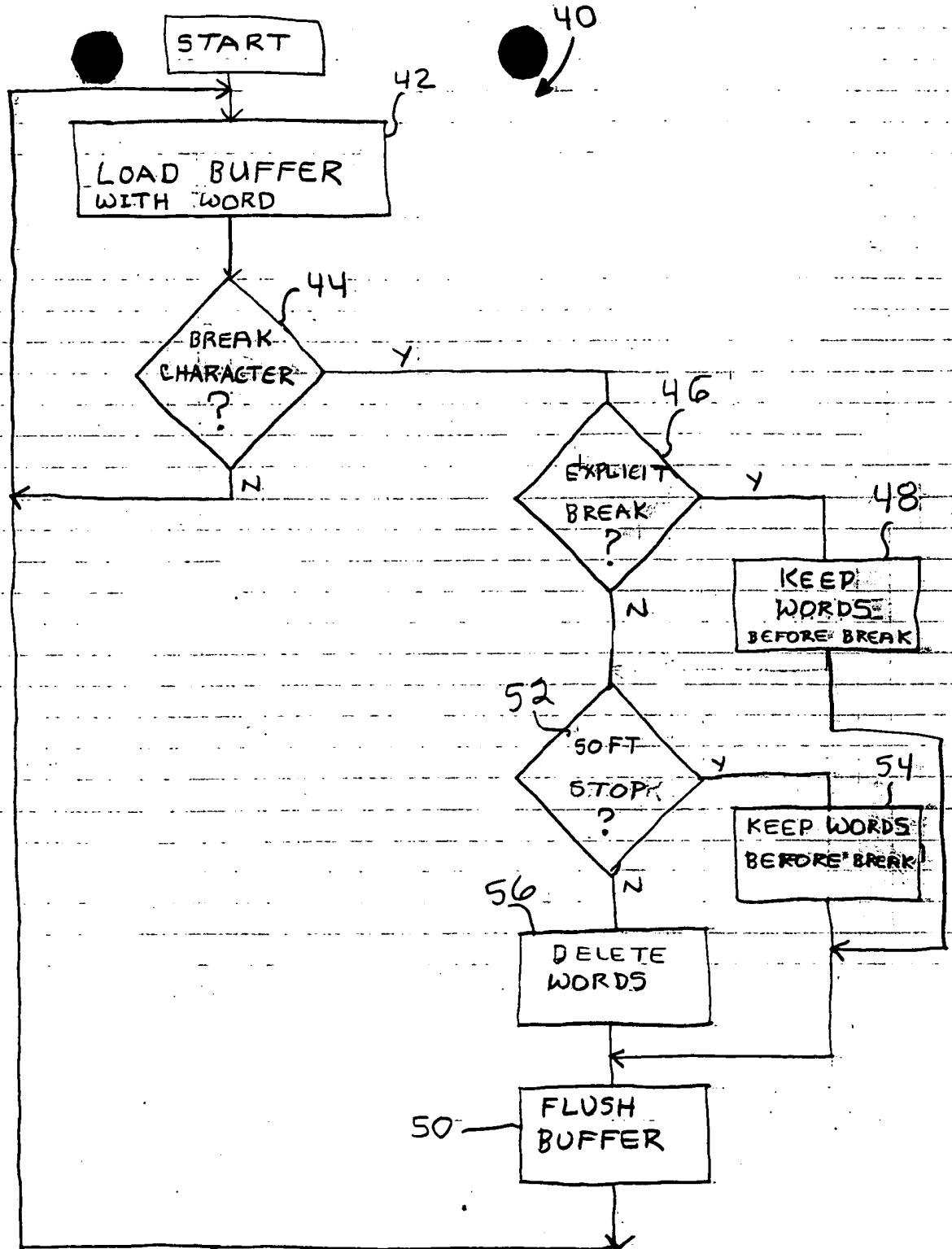


FIGURE 3B

GO

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## Authors

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### Full Text:

TOKYO, JAPAN, 1995 AUG 31 (NB) -- NEC Corporation has developed a robotically controlled electronic snake that offers far more movement than previously designed robots. The company says that the much greater freedom of movement "makes it perfect" for everything from industrial to disaster relief work.

The secret of the new device lies in a revolutionary new type of universal-joint. Previously joints in the body of robot have been restricted to movement in just one plane, either left and right or up and down. But the Tokyo-based company says it has succeeded in developing the world's first active universal joint.

Controlled by two motors, the joint allows full freedom of movement in all planes at each of the six joints along the robot's body, allowing the unit to crawl into places previously inaccessible.

At the heart of the robot is a computer-processing unit that receives signals from the operator's handset and controls movement. The controller can instruct the computer to control all the joints in harmony or specify individual control of each joint if necessary.

A video camera at the head of the robot sends signals back to the operator who can use them to steer the unit and also to examine places inaccessible to humans.

The entire device is 1.4 meters long and measures 42 millimeters in diameter. It weighs 4.6 kilograms.

The as-yet unnamed device is not yet commercially available, NEC's Mark Pearce told Newsbytes. "It will be a couple of years before everything is sorted out and it's ready to be sold. We have to increase the speed amongst other things," he said.

NEC says typical applications for such a robot could be investigation of complex pipework or as an aid to search teams in disaster hit areas where the device could crawl through the rubble of collapsed buildings.

(Martyn: Williams/19950830/Press-contact: Mark Pearce, NEC Corporation, tel +81-3-3798-6511, fax +81-3-3457-7249, Internet e-mail maku: 10-22150@aladdin.nec.co.jp/NEC950831/PHOTO)

**Record #**  
**17 337 353**

FIGURE 4



Word read	Word Type	Buffer	Word Index	Comments
,	Break	Flush		
JAPAN	JAPAN	JAPAN		
,	Break	Flush		
1995	Break			
AUG	Stop			
31	Break			
(	Break			
NB	Stop			
)	Break			
--	Break			
NEC	NEC	NEC		
Corporation	Corporation	NEC Corporation		
has	Stop	Flush	NEC Corporation	
developed	developed	developed		
a	Stop	Flush		
robotically	robotically	robotically		
controlled	controlled	robotically controlled		
electronic	electronic	robotically controlled electronic		
snake	snake	robotically controlled electronic snake	robotically controlled electronic snake	
that	Stop	Flush		
offers	active verb			
far	Stop			
more	Stop			
movement	movement	movement		
that	Stop	Flush		
previously	previously	previously		
designed	designed	previously designed		
robots	robots	previously designed robots		
	Break	Flush	previously designed robots	
The	Stop			
company	company	company		
says	Stop	Flush		
that	Stop			
the	Stop			

FIGURE 5B

Word read	Word Type	Buffer	Word Index	Comments
much	Stop			
greater	Stop			
freedom	freedom	freedom		
of	Connector	freedom of		
movement	movement	freedom of movement		
makes	Stop	Flush	freedom of movement	
it	Stop			
perfect	perfect	perfect		
for	Stop	Flush		
everything	Stop			
from	Stop			
industrial	industrial	industrial		
to	Stop	Flush		
disaster	disaster	disaster		
relief	relief	disaster relief		
work	work	disaster relief work		
	Break	Flush	disaster relief work	
The	Stop			
secret	secret	secret		
of	Connector	secret of		
the	THE	secret of the		
new	new	secret of the new		
device	device	secret of the new device		
lies	active verb	Flush	secret of the new device	
in	Stop			
a	Stop			
revolutionary	revolutionary	revolutionary		
new	new	revolutionary new type		
type	type	revolutionary new type		
of	Connector	revolutionary new type of		
universal	universal	revolutionary new type of universal		
joint	joint	revolutionary new type of universal joint		

FIGURE 5C

Word read	Word Type	Buffer	Word Index	Comments
.	Break	Flush	revolutionar y new type of universal joint	
Previously	Previously	Previously		
joints	active verb	Flush		
in	Stop			
the	Stop			
body	body	body		
of	Connector	of		
robot	robot	body of robot		
have	Stop	Flush	body of robot	
been	Stop			
restricted	restricted	restricted		
to	Stop	Flush		
movement	movement	movement		
in	Stop	Flush		
just	Stop			
one	Stop			
plane	plane	plane		
,	Break	Flush		
either	Stop			
left	left	left		
and	Connector	left and		
right	right	left and right		
or	Stop	Flush	left and right	
up	Stop			
and	Connector			
down	Stop			
.	Break			
But	Stop			
the	Stop			
Tokyo-based	Tokyo-based	Tokyo-based		
company	company	Flush company		
says	Stop	Flush		
it	Stop			
has	Stop			
succeeded	succeeded	succeeded		
in	Stop	Flush		
developing	developing	developing		
the	Stop	Flush		
world's	world's	world's		
first	first	world's first		

FIGURE 5D

Word read	Word Type	Buffer	Word Index	Comments
active	active	world's first active		
universal	universal	world's first active universal		
joint	joint	world's first active universal joint		
	Break	Flush	world's first active universal joint	
Controlled	Controlled	Controlled		
by	Stop	Flush		
two	Stop			
motors	motors	motors		
,	Break	Flush		
the	Stop			
joint	joint	joint		
allows	active verb	Flush		
full	full	full		
freedom	freedom	full freedom		
of	Connector	full freedom of		
movement	movement	full freedom of movement		
in	Stop	Flush	full freedom of movement	
all	Stop			
planes	active verb			
at	Stop			
each	Stop			
of	Connector			
the	THE			
six	Stop			
joints	active verb			
along	Stop			
the	Stop			
robot's	robot's	robot's		
body	body	robot's body		
,	Break	Flush	robot's body	
allowing	allowing	allowing		
the	Stop	Flush		
unit	unit	unit		
to	Stop	Flush		
crawl	crawl	crawl		

FIGURE 5E



Word read	Word Type	Buffer	Word Index	Comments
into	Stop	Flush		
places	active verb			
previously	previously	previously		
inaccessible	inaccessible	previously inaccessible		
.	Break	Flush	previously inaccessible	
At	Stop			
the	Stop			
heart	heart	heart		
of	Connector	heart of		
the	THE	heart of the		
robot	robot	heart of the robot		
is	Stop	Flush	heart of the robot	
a	Stop			
computer	computer	computer		
processing	processing	computer processing		
unit	unit	computer processing unit		
that	Stop	Flush	computer processing unit	
receives	active verb			
signals	signals	signals		
from	Stop	Flush		
the	Stop			
operator's	operator's	operator's		
handset	handset	operator's handset		
and	Connector	operator's handset and		
controls	active verb	Flush	operator's handset	
movement	movement	movement		
.	Break	Flush		
The	Stop			
controller	controller	controller		
can	Stop	Flush		
instruct	instruct	instruct		
the	Stop	Flush		
computer	computer	computer		
to	Stop	Flush		
control	control	control		

FIGURE 5F

Word read	Word Type	Buffer	Word Index	Comments
all	Stop	Flush		
the	Stop			
joints	active verb			
in	Stop			
harmony	harmony	harmony		
or	Stop	Flush		
specify	specify	specify		
individual	individual	individual		
control	control	individual control		
of	Connector	individual control of		
each	Stop	Flush	individual control	
joint	joint	joint		
if	Stop	Flush		
necessary	necessary	necessary		
.	Break	Flush		
A	Stop			
video	video	video		
camera	camera	video camera		
at	Stop	Flush	video camera	
the	Stop			
head	head	head		
of	Connector	head of		
the	THE	head of the		
robot	robot	head of the robot		
sends	active verb	Flush	head of the robot	
signals	signals	signals		
back	Stop	Flush		
to	Stop			
the	Stop			
operator	operator	operator		
who	Stop	Flush		
can	Stop			
use	Stop			
them	Stop			
to	Stop			
steer	steer	steer		
the	Stop	Flush		
unit	unit	unit		
and	Connector	unit and		
also	Stop	Flush		
to	Stop			

FIGURE 5G

Word read	Word Type	Buffer	Word Index	Comments
examine	examine	examine		
places	active verb	Flush		
inaccessible	inaccessible	inaccessible		
to	Stop	Flush		
humans	humans	humans		
.	Break	Flush		
The	Stop			
entire	entire	entire		
device	device	entire device		
is	Stop	Flush	entire device	
1	Break			
.	Break			
4	Stop			
meters	active verb			
long	long	long		
and	Connector	long and		
measures	active verb	Flush		
42	Break			
millimeters	millimeters	millimeters		
in	Stop	Flush		
diameter	diameter	diameter		
.	Break	Flush		
It	Stop			
weighs	weighs	weighs		
4	Break	Flush		
.	Break			
6	Break			
kilograms	kilograms	kilograms		
.	Break	Flush		
The	Stop			
as-yet	as-yet	as-yet		
unnamed	unnamed	as-yet unnamed		
device	device	as-yet unnamed device		
is	Stop	Flush	as-yet unnamed device	
not	Stop			
yet	Stop			
commercially	commercially	commercially		
available	available	commercially available		
,	Break	Flush	commercially available	

FIGURE 5H

Word read	Word Type	Buffer	Word Index	Comments
NEC's	NEC's	NEC's		
Mark	Mark	NEC's Mark		
Pearce	Pearce	NEC's Mark Pearce	NEC's Mark Pearce	
told	active verb (past tense)	Flush told		
Newsbytes	Newsbytes	Flush Newsbytes		
.	Break	Flush		
It	Stop			
will	Stop			
be	Stop			
a	Stop			
couple	couple	couple		
of	Connector	couple of		
years	years	couple of years		
before	Stop	Flush	couple of years	
everything	Stop			
in	Stop			
sorted	sorted	sorted		
out	Stop	Flush		
and	Connector			
it's	Stop			
ready	ready	ready		
to	Stop	Flush		
be	Stop			
sold	sold	sold		
.	Break	Flush		
We	Stop			
have	Stop			
to	Stop			
increase	increase	increase		
the	Stop	Flush		
speed	speed	speed		
amongst	Stop	Flush		
other	Stop			
things	things	things		
,	Break	Flush		
he	Stop			
said	Stop			
.	Break			
NEC	NEC	NEC		
says	Stop	Flush		
typical	typical	typical		

FIGURE 5I

Word read	Word Type	Buffer	Word Index	Comments
applications	applications	typical applications		
for	Stop	Flush	typical applications	
such	Stop			
a	Stop			
robot	robot	robot		
could	Stop	Flush		
be	Stop			
investigation	investigation	investigation		
of	Connector	investigation of		
complex	complex	investigation of complex		
pipework	pipework	investigation of complex pipework		
or	Stop	Flush	investigation of complex pipework	
as	Stop			
an	Stop			
aid	aid	aid		
to	Stop	Flush		
search	search	search		
teams	active verb	Flush		
in	Stop			
disaster	disaster	disaster		
hit	hit	disaster hit		
areas	areas	disaster hit areas		
where	Stop	Flush	disaster hit areas	
the	Stop			
device	device	device		
could	Stop	Flush		
crawl	crawl	crawl		
through	Stop	Flush		
the	Stop			
rubble	rubble	rubble		
of	Connector	rubble of		
collapsed	collapsed	rubble of collapsed		

FIGURE 5J

[illegible]

Word read	Word Type	Buffer	Word Index	Comments
buildings	buildings	rubble of collapsed buildings		
.	Break	Flush	rubble of collapsed buildings	
(	Break			
Martyn	Martyn	Martyn		
Williams/19950830/Press	Williams/19950830/Press	Martyn Williams/19950830/Press	Martyn Williams/19950830/Press	Words containing numbers
contact	contact	Flush contact		
:	Break	Flush		
Mark	Mark	Mark		
Pearce	Pearce	Mark Pearce		
,	Break	Flush	Mark Pearce	
NEC	NEC	NEC		
Corporation	Corporation	NEC Corporation		
,	Break	Flush	NEC Corporation	
tel	Stop			
+81-3-3798-6511	Break			
,	Break			
fax	Stop			
+81-3-3457-7249	Break			
,	Break			
Internet	Internet	Internet		
e-mail	Stop	Flush		
maku_10-22150@aladdin	maku_10-22150@aladdin	maku_10-22150@aladdin		Words containing numbers Words containing Internet codes
.	Break	Flush		
nec	nec	nec		
.	Break	Flush		
co	co	co		
.	Break	Flush		
jp/NEC950831/PHOTO	jp/NEC950831/PHOTO	jp/NEC950831/PHOTO		Words containing numbers
)	Break	Flush		
----- -----	Break			

FIGURE 5K



## 第1部 環境行政の課題と展開

### 第1節 環境行政の現状と課題

大量生産と大量消費に基づく今日の社会経済システムは、人々の快適な生活を支える一方で、エネルギーの消費とあいまって、今や国際課題とも言うべき地球温暖化をはじめとする様々な環境問題を引き起こす結果をもたらした。

また、本県においても都市中小河川・流域の水質汚濁や自動車排出ガスによる大気汚染などの都市生活型公害が顕在化しているほか、近年急激な焼却に伴い発生するダイオキシン類や新たな環境ホルモン問題、廃棄物処理とリサイクル対策など克服しなければならない課題が生じてきている。

一方、人々の価値観が多様化し、生活の質をより重視する時代へと変化してきていることから、豊かな生活環境や自然とのふれあいの場など、心安く、より質の高い地域環境の保全・創造が求められている。

こうした広範な環境問題に適切に対応するためには、総合的な視点に立ち、各種施策を計画的に、また、着実に進めることが必要となっている。

#### 1 有害化学物質による環境汚染の防止

科学技術の進展に伴い、生産・使用される化学物質は多種にわたり、また、その排出形態も多様化している。さらに、ダイオキシン類など非意図的に生成するものもあり、有害化学物質による環境汚染への対応が大きな課題となっている。

私たちを取り巻く環境は、大気・水・土壌・生物等を構成要素として成り立っているが、生産・使用・廃棄等の各段階で排出される化学物質は、これらの要素の間を循環することになる。こうした循環の過程を通して、人間はもとよりあらゆる生物が様々な化学物質にさらされているが、一部の化学物質については、極めて低濃度でも生物に影響を及ぼすおそれがあるにもかかわらず、その有害性の程度はもとより、大気・水・土壌等環境中での挙動についての科学的知見は必ずしも十分とはいえない状況にある。

特に、環境ホルモンと呼ばれる化学物質については、国において調査研究が緒に就いた段階であり、環境ホルモンとして内分泌機能作用が疑われている約70の物質についてすら、人類をはじめ野生生物等に対する作用のメカニズムは未解明である。また、多くの化学物質について、その環境への排出量や廃棄物等としての移動量などの実態は、いまだ把握されていないのが現状である。

Figure 3-6



福井県環境白書  
環境行政の課題と展開  
環境行政の現状と課題  
大量生産と大量消費  
今日の社会経済システム  
快適な生活  
エネルギーの消費  
国際課題  
地球温暖化  
環境問題  
都市中小河川  
湖沼の水質汚濁  
自動車排出ガス  
大気汚染  
生活型公害  
ダイオキシン類  
環境ホルモンの問題  
廃棄物処理とリサイクル対策  
生活の質  
生活環境  
地域環境の保全  
広範な環境問題  
総合的視点  
各種施策  
有害化学物質  
環境汚染の防止  
科学技術の進展  
化学物質  
排出形態

92

94

Figure 7

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